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TREASURY DEPARTMENT
UNITED STATES COAST GUARD

DIRECTIONS
FOR
RESTORING THE
APPARENTLY DROWNED

FOR SAVING DROWNING PERSONS
BY SWIMMING TO THEIR RELIEF
—AND FOR THE—
TREATMENT OF FROSTBITES

AS PRACTICED IN THE
UNITED STATES COAST GUARD



WASHINGTON
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NAVY DEPARTMENT
WASHINGTON, D.C.

DIRECTIONS

FOR

RESTORING THE
APPARENTLY DROWNED

OR SAVING DROWNED PERSONS
BY SWIMMING TO THEIR RESCUE
TREATMENT OF FROSTBITTEN

BY W. H. H. H. H.

UNITED STATES COAST GUARD



WASHINGTON
GOVERNMENT PRINTING OFFICE

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UNITED STATES COAST GUARD



DIRECTIONS FOR RESTORING THE APPARENTLY DROWNED.

NOTE.—These directions differ from those originally issued to the Service, by the addition of means for securing deeper inspiration. The method originally published, known as the Howard or direct method, has been productive of excellent results in the practice of the Service, and is retained here. It is, however, here arranged for practice in combination with the Sylvester method, the latter producing deeper inspiration than any other known method, while the former effects the most complete expiration. The combination therefore tends to produce the most rapid oxygenation of the blood—the real object to be gained. The combination is prepared primarily for the use of Coast Guard crews where assistants are at hand. A modification of Rule III, however, is published as a guide in cases where no assistants are at hand and one person is compelled to act alone.



FIG 1—EXPELLING WATER FROM BODY

In preparing these directions the able and exhaustive report of a committee of the Humane Society of Massachusetts, embraced in the annual report of the society for 1895-96, has been availed of, placing the Department under many obligations for its valuable suggestions.

RULE I. AROUSE THE PATIENT.—Do not move the patient unless in danger of freezing; instantly expose the face to the air, toward the wind if there be any; wipe dry the mouth and nostrils; rip the clothing so as to expose the chest and waist; give two or three quick, smarting slaps on the chest with the open hand.

If the patient does not revive proceed immediately as follows:

RULE II. TO EXPEL WATER FROM THE STOMACH AND CHEST (see Fig. 1).—Separate the jaws and keep them apart by placing between

the teeth a cork or small bit of wood; turn the patient on his face, a large bundle of tightly rolled clothing being placed beneath the stomach; press heavily on the back over it for half a minute, or as long as fluids flow freely from the mouth.

RULE III. TO PRODUCE BREATHING (see Figs. 2 and 3).—Clear the mouth and throat of mucus by introducing into the throat the corner of a handkerchief wrapped closely around the forefinger; turn the patient on the back, the roll of clothing being so placed as to raise the pit of the stomach above the level of the rest of the body. Let an assistant with a handkerchief or piece of dry cloth draw the tip of the tongue out of one corner of the mouth (which prevents the tongue from falling back and choking the entrance to the windpipe), and keep it projecting a little beyond the lips. Let another assistant grasp the arms just below the elbows and draw them steadily upward by the sides of the patient's head to the ground, the hands nearly



FIG. 2.- MOVEMENTS TO PRODUCE INSPIRATION

meeting (which enlarges the capacity of the chest and induces inspiration). (Fig. 2.) While this is being done let a third assistant take position astride the patient's hips with his elbows resting upon his own knees, his hands extended ready for action. Next, let the assistant standing at the head turn down the patient's arms to the sides of the body, the assistant holding the tongue, changing hands if necessary¹ to let the arms pass. Just before the patient's hands reach the ground, the man astride the body will grasp the body with his hands, the balls of the thumbs resting on either side of the pit of the stomach, the fingers falling into the grooves between the short ribs. Now, using his knees as a pivot, he will at the moment the patient's hands touch the ground throw (not too suddenly) all his weight forward on his hands, and at the same time squeeze the waist between them as if he wished to force anything in the chest upward out of the mouth; he will deepen the pressure while he slowly counts

¹ Changing hands will be found unnecessary after some practice; the tongue, however, must not be released.

1, 2, 3, 4 (a period of 2 to $2\frac{1}{2}$ seconds) then suddenly let go with a final push, which will spring him back to his first position.¹ This completes *expiration*. (Fig. 3.)

At the instant of his letting go, the man at the patient's head will again draw the arms steadily upward to the sides of the patient's head as before (the assistant holding the tongue again changing hands to let the arms pass if necessary), holding them there while he slowly counts 1, 2, 3, 4 (a period of 2 to $2\frac{1}{2}$ seconds). This completes *inpiration*.

Repeat these movements deliberately and perseveringly twelve to fifteen times in every minute—thus imitating the natural motions of breathing.

If natural breathing be not restored after a trial of the bellows movement for the space of about four minutes, then turn the patient a second time on the stomach, as directed in Rule II, rolling the body



FIG. 3—MOVEMENTS TO PRODUCE EXPIRATION

in the opposite direction from that in which it was first turned, for the purpose of freeing the air passage from any remaining water. Continue the artificial respiration from one to four hours, or until the patient breathes, according to Rule III; and for a while after the appearance of returning life, carefully aid the first short gasps until deepened into full breaths. Continue the drying and rubbing, which should have been unceasingly practiced from the beginning by assistants, taking care not to interfere with the means employed to produce breathing. Thus the limbs of the patient should be rubbed, always in an upward direction toward the body, with firm-grasping pressure and energy, using the bare hands, dry flannels or handkerchiefs, and continuing the friction under the blankets or over the dry clothing. The warmth of the body can also be promoted by the application of hot flannels to the stomach and armpits, bottles or bladders of hot water, heated bricks, etc., to the limbs and soles of the feet.

¹ A child or very delicate patient must, of course, be more gently handled.

RULE IV. AFTER-TREATMENT.—*Externally:* As soon as breathing is established let the patient be stripped of all wet clothing, wrapped in blankets only, put to bed comfortably warm, but with a free circulation of fresh air, and left to perfect rest. *Internally:* Give aromatic spirits of ammonia in doses of a teaspoonful to a tablespoonful, according to the weight of the patient, or hot tea or coffee, every 10 or 15 minutes for the first hour, and as often thereafter as may seem expedient. *Later manifestations:* After reaction is fully established there is great danger of congestion of the lungs, and if perfect rest is not maintained for at least forty-eight hours it sometimes occurs that the patient is seized with great difficulty of breathing, and death is liable to follow unless immediate relief is afforded. In such cases apply a large mustard plaster over the breast. If the patient gasps for breath before the mustard takes effect, assist the breathing by carefully repeating the artificial respiration.



FIG. 4.—MOVEMENTS BY ONE PERSON TO PRODUCE INSPIRATION

MODIFICATION OF RULE III.

[To be used after Rules I and II in case no assistance is at hand.]

TO PRODUCE RESPIRATION.—If no assistance is at hand and one person must work alone, turn the patient on the back, the roll of clothing being so placed as to raise the pit of the stomach above the level of the rest of the body; draw forward the tongue and keep it projecting just beyond the lips; if the lower jaw be lifted the teeth may be made to hold the tongue in place; it may be necessary to retain the tongue by passing a handkerchief under the chin and tying it over the head.

Take position astride the patient's hips, as in Figure 5. Grasp the arms just below the elbows and raise them steadily upward by the sides of the patient's head to the ground, the hands nearly meeting, holding them there while slowly counting 1, 2, 3, 4 (a period of 2 to 2½ seconds). This enlarges the capacity of the chest and induces inspiration. (Fig. 4.)

Next lower the arms to the sides and just before they reach the ground drop them and instantly grasp the body with the hands, the balls of the thumbs resting on either side of the pit of the stomach, the fingers falling into the grooves between the short ribs; now, using his knees as a pivot, the operator will throw (not too suddenly) all his weight forward on his hands, and at the same time squeeze the waist between them as if he wished to force anything in the chest upward out of the mouth; he will deepen the pressure while he slowly counts 1, 2, 3, 4 (a period of 2 to $2\frac{1}{2}$ seconds), then suddenly let go



FIG. 5.—MOVEMENTS BY ONE PERSON TO PRODUCE EXPIRATION

with a final push, which will spring him back to his first position as in rule 3. This completes expiration. (Fig. 5.)

At the instant of letting go, grasp the arms just below the elbows and raise them steadily upward by the sides of the patient's head to the ground, holding them there while slowly counting 1, 2, 3, 4 (a period of 2 to $2\frac{1}{2}$ seconds). This completes inspiration. (Fig. 4.)

Repeat these movements 12 to 15 times in every minute—thus imitating the natural motions of breathing.

INSTRUCTIONS FOR SAVING DROWNING PERSONS BY SWIMMING TO THEIR RELIEF.

1. When you approach a person drowning in the water assure him with a loud and firm voice that he is safe.

2. Before jumping in to save him, divest yourself as far and as quickly as possible of all clothes; tear them off if necessary; but if there is not time, loose at all events the foot of your drawers, if they are tied, as, if you do not do so, they fill with water and drag you.

3. On swimming to a person in the sea, if he be struggling do not seize him then, but keep off for a few seconds till he gets quiet, for it is sheer madness to take hold of a man when he is struggling in the water, and if you do you run a great risk.

4. Then get close to him and take fast hold of the hair of his head, turn him as quickly as possible onto his back, give him a sudden pull, which will cause him to float, then throw yourself on your back also and swim for the shore, both hands having hold of his hair, you on your back and he also on his, and of course his back to your stomach. In this way you will get sooner and safer ashore than by any other means, and you can easily thus swim with two or three persons; the writer has even, as an experiment, done it with four, and gone with them 40 or 50 yards in the sea. One great advantage of this method is that it enables you to keep your head up and also to hold the person's head up you are trying to save. It is of primary importance that you take fast hold of the hair and throw both the person and yourself on your backs. After many experiments, it is usually found preferable to all other methods. You can in this manner float nearly as long as you please, or until a boat or other help can be obtained.

5. It is believed there is no such thing as a *death grasp*; at least it is very unusual to witness it. As soon as a drowning man begins to get feeble and to lose his recollection, he gradually slackens his hold until he quits it altogether. No apprehension need, therefore, be felt on that head when attempting to rescue a drowning person.

6. After a person has sunk to the bottom, if the water be smooth, the exact position where the body lies may be known by the air bubbles, which will occasionally rise to the surface, allowance being of course made for the motion of the water, if in a tideway or stream, which will have carried the bubbles out of a perpendicular course in rising to the surface. Oftentimes a body may be regained from the bottom, before too late for recovery, by diving for it in the direction indicated by these bubbles.

7. On rescuing a person by diving to the bottom, the hair of the head should be seized by one hand only, and the other used in conjunction with the feet in raising yourself and the drowning person to the surface.

8. If in the sea, it may sometimes be a great error to try to get to land. If there be a strong "outsetting" tide, and you are swimming either by yourself or having hold of a person who can not swim, then get on your back and float till help comes. Many a man exhausts himself by stemming the billows for the shore on a back-going tide, and sinks in the effort, when, if he had floated, a boat or other aid might have been obtained.

9. These instructions apply alike to all circumstances, whether as regards rough sea or smooth water.

TREATMENT OF FROSTBITES.

1. Do not bring the patient to the fire, nor bathe the parts in warm water.

2. If snow be on the ground, or accessible, take a woolen cloth in the hand, place a handful of snow upon it, and gently rub the frozen part until the natural color is restored. In case snow is not at hand, bathe the part gently with a woolen cloth in the coldest *fresh* water obtainable—ice water, if practicable.

3. In case the frostbite is old, and the skin has turned black or begun to scale off, do not attempt to restore its vitality by friction, but apply boracic acid ointment on a little cotton; after which wrap the part loosely in flannel.

4. In all cases, as soon as the vitality has been restored, apply the boracic acid ointment, prepared according to the following formula:

Boracic acid ointment—

Boracic acid, 1 part.

Vaseline, 9 parts.

Mix.

5. In the case of a person apparently dead from exposure to cold, friction should be applied to the body and the lower extremities, and artificial respiration practiced as in cases of the apparently drowned. As soon as the circulation appears to be restored, administer aromatic spirits of ammonia or hot tea or coffee at intervals of fifteen or twenty minutes until the flesh feels natural. Even if no signs of life appear, friction should be kept up for a long period, as instances are on record of recovery after several hours of suspended animation.

